paragraph (r)(4) of this section relative to those assumed in paragraph (r)(3)(vii) of this section. This scaling must assume a linear relationship between the NMOG credit and three aspects of the direct ozone reducing device: radiator area, average air flow through the radiator relative to vehicle speed, and ozone reduction efficiency and the NMOG credit. The NMOG credit must be rounded to the nearest 0.001 g/mi. For example, if the NMOG credit determined in paragraph (r)(3)(xv) of this section was 0.01 g/mi and the specific direct ozone reducing device being certified had an area of 0.20 square meters, an air flow velocity of 30% of vehicle speed and an ozone reducing efficiency of 70%, and the generic ozone reducing device simulated in the ozone model under paragraph (r)(3)(vii) of this section had an area of 0.29 square meters, an air flow velocity of 40% of vehicle speed and an ozone reducing efficiency of 80%, the NMOG credit applicable to the specific device being certified would be:

0.01 g/mi * (0.20/0.29) * (30%/40%) * 70%/80%) = 0.005

(s) Manufacturers may request to group heavy-duty vehicles into the same test group as other vehicles subject to more stringent standards, so long as all vehicles in the test group meet the most stringent standards applicable to any vehicle within that test group, as provided at § 86.1827–1(a)(5) and (d)(4).

[65 FR 6854, Feb. 10, 2000; 65 FR 10598, Feb. 28, 2000, as amended at 65 FR 59970, Oct. 6, 2000; 66 FR 19309, Apr. 13, 2001; 67 FR 72825, Dec. 6, 2002; 70 FR 40443, July 13, 2005; 71 FR 16060, Mar. 30, 2006; 72 FR 8562, Feb. 26, 2007; 76 FR 57377, Sept. 15, 2011; 79 FR 23713, Apr. 28, 2014]

§ 86.1811–09 Emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.

Section 86.1811–09 includes text that specifies requirements that differ from § 86.1811–04. Where a paragraph in § 86.1811–04 is identical and applicable to § 86.1811–09, this may be indicated by specifying the corresponding paragraph and the statement ''[Reserved]. For guidance see § 86.1811–04.'' Where a corresponding paragraph of § 86.1811–04 is not applicable, this is indicated by the statement ''[Reserved]''

(a) *Applicability.* (1) This section contains regulations implementing emission standards for all LDVs, LDTs and MDPVs. This section applies to 2009 and later model year LDVs, LDTs and MDPVs fueled by gasoline, diesel, methanol, ethanol, natural gas and liquefied petroleum gas fuels, except as noted. Additionally, this section applies to hybrid electric vehicles (HEVs) and zero emission vehicles (ZEVs). Unless otherwise specified, multi-fueled vehicles must comply with all requirements established for each consumed fuel.

(2) through (4) [Reserved]. For guidance see § 86.1811–04.

(5) The exhaust emission standards and evaporative emission standards of this section apply equally to certification and in-use LDVs, LDTs and MDPVs, unless otherwise specified. See paragraph (t) of this section for interim evaporative emission in-use standards that are different than the certification evaporative emission standards specified in paragraph (e) of this section.

(b) through (d) [Reserved]. For guidance see § 86.1811–04.

(e) *Evaporative emission standards.* Evaporative emissions from gasoline-fueled, natural gas-fueled, liquefied petroleum gas-fueled, ethanol-fueled and methanol-fueled vehicles must not exceed the standards in this paragraph (e) at low altitude conditions. The evaporative emission standards specified in § 86.1811–04(e)(1) continue to apply at high altitude conditions. The standards apply equally to certification and in-use vehicles.

(1) *Diurnal-plus-hot soak evaporative hydrocarbon standards.* (i) Hydrocarbons for LDV/LLDTs, HLDTs and MDPVs that are gasoline-fueled, dedicated natural gas-fueled, dedicated liquefied petroleum gas-fueled, dedicated ethanol-fueled, dedicated methanol-fueled and multi-fueled vehicles when operating on gasoline must not exceed the diurnal plus hot soak standards shown in Table S09–1 for the full three diurnal test sequence and for the supplemental two diurnal test sequence. The standards apply equally to certification and in-use vehicles, except as otherwise

specified in paragraph (t) of this section. Table S09–1 follows:

TABLE S09–1—LIGHT-DUTY DIURNAL PLUS HOT SOAK EVAPORATIVE EMISSION STANDARDS

[grams per test]

Vehicle category	Model year	3 day diurnal+hot soak	Supplemental 2 day diurnal+hot soak
LDVs	2009	0.50	0.65
LLDTs	2009	0.65	0.85
HLDTs	2010	0.90	1.15
MDPVs	2010	1.00	1.25

(ii) Hydrocarbons for LDV/LLDTs, HLDTs and MDPVs that are multi-fueled vehicles operating on non-gasoline fuel must not exceed the diurnal plus hot soak standards shown in Table S09–2 for the full three diurnal test sequence and for the supplemental two diurnal test sequence. The standards apply equally to certification and in-use vehicles except as otherwise specified in paragraph (t) of this section. Table S09–2 follows:

TABLE S09–2—LIGHT-DUTY DIURNAL PLUS HOT SOAK EVAPORATIVE EMISSION STANDARDS: NON-GASOLINE PORTION OF MULTI-FUELED VEHICLES

[grams per test]

Vehicle category	3 day diurnal+hot soak	Supplemental 2 day diurnal+hot soak
LDVs	0.50	0.65
LLDTs	0.65	0.85
HLDTs	0.90	1.15
MDPVs	1.00	1.25

(iii) For multi-fueled vehicles operating on non-gasoline fuel, manufacturers must comply with the phase-in requirements in Table S09–3 of this paragraph for the evaporative emission requirements specified in Table S09–2 of this section. Phase-in schedules are grouped together for LDV/LLDTs and HLDT/MDPVs. These requirements specify the minimum percentage of the manufacturer's LDV/LLDT/HLDT/MDPV 50-State sales, by model year, that must meet the requirements for their full useful lives. Table S09–3 follows:

TABLE S09–3—PHASE-IN PERCENTAGES FOR LIGHT-DUTY DIURNAL PLUS HOT SOAK EVAPORATIVE EMISSION STANDARDS: NON-GASOLINE PORTION OF MULTI-FUELED VEHICLES

Model year	Percentage of vehicles that must meet evaporative emission requirements
2012	30
2013	60
2014 and subsequent	100

(2) through (6) [Reserved]. For guidance see § 86.1811–04.

(7) In cases where vehicles are certified to evaporative emission standards in Tables S09–1 and S09–2 of this section, the Administrator may accept evaporative emissions data for low altitude testing in accordance with California test conditions and test procedures (in lieu of the evaporative emission test condition and test procedure requirements of subpart B of this part).

(f) through (s) [Reserved]. For guidance see § 86.1811–04.

(t) *Evaporative emission in-use standards.* (1) For LDVs and LLDTs certified prior to the 2012 model year, the Tier 2 LDV/LLDT evaporative emissions standards in Table S04–3 of § 86.1811–04(e) shall apply to in-use vehicles for only the first three model years after an evaporative family is first certified to the LDV/LLDT evaporative emission standards in Table S09–1 of paragraph (e) of this section, as shown in Table S09–4. For example, evaporative families first certified to the LDV/LLDT standards in Table S09–1 in the 2011 model year must meet the Tier 2 LDV/LLDT evaporative emission standards (Table S04–3) in-use for 2011, 2012, and 2013 model year vehicles (applying Tier

2 standards in-use is limited to the first three years after introduction of a vehicle).

(2) For HLDTs and MDPVs certified prior to the 2013 model year, the Tier 2 HLDT/MDPV evaporative emissions standards in Table S04–3 of § 86.1811–04(e) shall apply to in-use vehicles for only the first three model years after an evaporative family is first certified to the HLDT/MDPV evaporative emission standards in Table S09–1 of paragraph (e) of this section, as shown in Table S09–5. For example, evaporative families first certified to the HLDT/MDPV standards in Table S09–1 in the 2012 model year must meet the Tier 2 HLDT/MDPV evaporative emission standards (Table S04–3) in-use for 2012, 2013, and 2014 model year vehicles (applying Tier 2 standards in-use is limited to the first three years after introduction of a vehicle).

TABLE S09–4—SCHEDULE FOR IN-USE LDV/LLDT DIURNAL PLUS HOT SOAK EVAPORATIVE EMISSION STANDARDS

Model Year of Introduction	2009	2010	2011
Models Years That Tier 2 Standards Apply to In-use Vehicles	2009 2010 2011	2010 2011 2012	2011 2012 2013

TABLE S09–5—SCHEDULE FOR IN-USE HLDT/MDPV DIURNAL PLUS HOT SOAK EVAPORATIVE EMISSION STANDARDS

Model Year of Introduction	2010	2011	2012
Models Years That Tier 2 Standards Apply to In-use Vehicles	2010 2011 2012	2011 2012 2013	2012 2013 2014

[72 FR 8562, Feb. 26, 2007; 72 FR 13352, Mar. 21, 2007, as amended at 76 FR 39521, July 6, 2011]

§ 86.1811–10 Emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.

Section 86.1811–10 includes text that specifies requirements that differ from §§ 86.1811–04 and 86.1811–09. Where a paragraph in § 86.1811–04 or § 86.1811–09 is identical and applicable to § 86.1811–10, this may be indicated by specifying the corresponding paragraph and the statement ''[Reserved]. For guidance see § 86.1811–04'' or ''[Reserved]. For guidance see § 86.1811–09.'' Where a corresponding paragraph of § 86.1811–04 or § 86.1811–09 is not applicable, this is indicated by the statement ''[Reserved]''

(a) [Reserved]. For guidance see § 86.1811–09.

(b) through (d) [Reserved]. For guidance see § 86.1811–04.

(e) [Reserved]. For guidance see § 86.1811–09.

(f) [Reserved]. For guidance see § 86.1811–04.

(g) *Cold temperature exhaust emission standards.* (1) Cold temperature CO standards. These cold temperature CO standards are applicable only to gasoline fueled LDV/Ts and MDPVs. Cold temperature CO exhaust emission standards apply over a useful life of 50,000 miles or 5 years (whichever occurs first) as follows:

(i) For LDVs and LDT1s, the standard is 10.0 grams per mile CO.

(ii) For LDT2s, LDT3s and LDT4s, and MDPVs, the standard is 12.5 grams per mile CO.

(iii) These standards do not apply to interim non-Tier 2 MDPVs.

(2) *Cold temperature NMHC standards.* Full useful life fleet average cold temperature NMHC standards are applicable only to gasoline fueled LDV/LLDTs and HLDT/MDPVs, and apply equally to certification and in-use except as otherwise specified in paragraph (u) of this section for in-use standards for applicable phase-in models. Testing with other fuels such as E85, or testing on diesel vehicles, is not required. Multi-fuel, bi-fuel or dual-fuel vehicles must comply with requirements using gasoline only. For LDV/LLDTs, the useful life is 120,000 miles or 10 years, whichever comes first. For HLDT/MDPVs, the useful life is 120,000 miles or 11 years, whichever comes first. There is not an intermediate useful life standard for cold temperature NMHC standards.

(i) The standards are shown in the following table: